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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,171	09/10/2004	Malcolm Pressley	038665.55361US	8960
23911	7590	11/14/2006	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			KNOX, STEWART	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/507,171	PRESSLEY, MALCOLM	
	Examiner Stewart T. Knox	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 September 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-5 and 10-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-5 and 10-12 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-5, 10, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Claims 1 and 11 recite the limitations "the pre-mixed explosive material" in the last line and second-to-last line, respectively. There is insufficient antecedent basis for this limitation in the claim, since all previous references were changed to "pre-mix explosive material."

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 1-2, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue (4,369,689) in view of Hiorth (4,191,480) in view of Halliday (4,966,077). Donaghue discloses an apparatus for the mixing of explosive materials, comprising a reservoir of pre-mixed explosive material (element 1), a reservoir of hardener material (element 7, col. 4 lines 40-45 – isocyanate, a component of IPDI), a mixer (deflector plate 5), and a method of using the apparatus. Donaghue does not disclose the two reservoirs having separate pipe means to connect to a static mixer, wherein the materials are combined at the inlet of the mixer, or a hydraulic cylinder and ram assembly. Hiorth discloses a static mixer for the mixing of explosive materials

from two reservoirs (A, B) that mix substantially at the inlet of the static mixer in order to solve the problem where the intermixing of the materials results in a change of consistency that hampers the further treating process (col. 2 lines 6-12) and provide a continuous mixing process that does not require any moving parts other than the materials themselves (col. 1 lines 13-16), thus reducing the problems associated with a finite pot life of the mixture (i.e. mechanical breakdowns, length of time that the mixture is combined before being dispensed). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixer of Donaghue with the static mixer and pipe connections of Hiorth, since such a modification would provide the explosives mixer with a means of mixing explosives where the change in consistency (i.e. hardening or curing) or a breakdown in the machinery will be less likely to cause problems.

3. With respect to the hydraulic cylinder and ram assembly, Halliday teaches that it is known to provide a hydraulic cylinder and ram assembly that is coupled to apply controlled pressure to a pre-mix explosive material, upstream of a static mixer (col. 4 lines 48-50, col. 5 line 65), in order to control the rate of finished material that exits the mixer and control the ratio of materials in the mixer (col. 1 lines 40-65, col. 3 lines 59-69 and col. 4 lines 1-4, col. 5 lines 29-69). With respect to claim 11, this further constitutes a flow meter (col. 5 lines 48-64, by counting cylinder strokes) for determining the flow of the pre-mix explosive material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mixing assembly of Donaghue to use a hydraulic cylinder and ram assembly as taught by Holliday, since such a modification would provide the mixing assembly with an apparatus to precisely control the composition and flow of the mixed explosive material.

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4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue and the other references as applied to claim 1 above, and further in view of AECI Limited (UK Patent Application GB 2 205 386 A). Donaghue discloses the claimed invention except piping for filling ordnance with explosive material. AECI discloses an explosives mixer that utilizes a static mixer and channels the output into cartridge shells or other ordnance (pg. 1 lines 1-5). Alternately, the cylindrical tube of Donaghue is capable of being used to fill ordnance if it is placed over an empty shell. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixer of Donaghue to be able to fill ordnance as well as bore holes, since such a modification would let the explosive composition be used in situations other than just the filling of bore holes.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue, Hiorth, and Holliday as applied to the claims above, and further in view of Pyle (4,503,994). The combined references disclose the claimed invention including an automated ordnance fill level controller by way of a stroke counter in the hydraulic cylinder of Holliday, but do not disclose the controller comprising at least one fiber optic sensor. Pyle discloses a fiber-optic liquid level sensing device that will shut off the flow of fluid when it reaches a certain height. Conventional means for performing this task may have been as simple as a technician observing the level of explosive in the borehole or ordnance and adjusting the motor/pump accordingly. To one of ordinary skill in the art, though, this is inefficient and it would be optimal to replace this with a more precise, non-human measuring tool to fill the container to a predetermined level (col. 1 lines 15-16), and a fiber-optic shutoff system is disclosed. It would have been obvious to one of ordinary skill in the art to modify the explosives mixer of Donaghue

to use a fiber-optic sensing device (as disclosed by Pyle) to determine when the bore hole or ordnance has been filled to the top, since such a modification would allow for the device to run more automatically and not require the constant input and monitoring of a human user.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being obvious over Donaghue in combination with the others as applied to claim 1 above. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixing assembly of Donaghue to mix plastic bonded explosives (PBX), since it was known in the art that PBX is a common explosive that can be cured with a curing agent such as isocyanate or IPDI as provided by Donaghue, and such a modification would allow the assembly to be used with many different types of explosives.

Response to Arguments

7. Applicant's arguments with respect to the Hill reference have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's arguments with respect to modifying Donaghue (i.e. that Donaghue discloses use with solid particulates, and the application of pressure to such constituents is improper) are acknowledged, however, the Examiner notes that Donaghue is used for its teaching of mixing pre-mix explosive material with a hardening of curing agent in two separate reservoirs. Further, Donaghue teaches mixing the materials just before they are placed in their final location, rather than at some other location or time.

9. Accordingly, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed

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invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

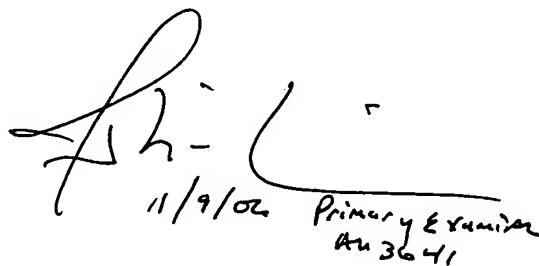
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stewart T. Knox whose telephone number is (571) 272-8235. The examiner can normally be reached on Monday through Thursday, 8:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stewart Knox



A handwritten signature in black ink, appearing to read "S. T. KNOX". Below the signature, the date "11/9/02" is written. To the right of the date, the words "Primary Examiner" are written, followed by "Art Unit 3641" on a separate line.